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10/562,446	12/27/2005	Hideaki Matsuhashi	2005_1875A	3477

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DAVIS, MARY ALICE	
ART UNIT	**PAPER NUMBER**
3748	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/562,446	MATSUHASHI, HIDEAKI	
	Examiner	Art Unit	
	MARY A. DAVIS	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *14,16-21,28 and 30-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14,16-21,28 and 30-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 recites the limitation "said Hale-machining" in line 10. There is insufficient antecedent basis for this limitation in the claim. "Said Hale-machining" should be changed to - - said non-rotating tool machining - - to correspond to the other changes the applicant had made.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 14, 16-18, 28, and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over BISHOP (World Intellectual Organization Publication Number WO 89/08522).

Regarding claim 14, BISHOP discloses:

- A method for machining a scroll wrap, comprising:

- forming a stationary scroll having an end plate and a scroll wrap extending from said end plate thereof (see Figures 1-2, Page 2, lines 12 - 14), said scroll wrap of said stationary scroll having a side face (see Figures 1-2 which show that the stationary scroll has a side face) (see Page 1, lines 13 - 17),
- forming a slewing scroll having an end plate and a scroll wrap extending from said end plate thereof (see Figures 3-4, Page 2, lines 12 - 14), said scroll wrap of said slewing scroll having a side face (see Figures 3-4 which show that the slewing scroll has a side face) (see Page 1, lines 13 - 17),
- wherein said side face of said stationary scroll wrap and said side face of said slewing scroll wrap are configured to slide with respect to each other in use (Page 1, lines 18 – 34); and
- non-rotating-tool machining said side face of one of said stationary scroll wrap and said slewing scroll wrap by moving along a longitudinal direction of said one of said stationary scroll wrap and said slewing scroll wrap a non-rotational blade (see Figures 1, 5-7, and 12 – 17; Page 4, line 25 – Page 5, line 24, Page 11, line 27+) such that machined at one time is a portion of said side face of said one of said stationary scroll wrap and said slewing scroll wrap (see Figure 14, Page 4, line 25 – Page 5, line 24, which shows that machined at one time is a portion of the side face);
- the non- rotational blade has a length greater than the height of said one of said stationary scroll wrap and said slewing scroll wrap (see Figure 7).

Regarding claims 16 and 30, BISHOP discloses:

- cutting-machining by end milling both said side face of said one of said stationary scroll wrap and said slewing scroll wrap and a surface of said end plate from which said one of said stationary scroll wrap and said slewing scroll wrap extends (see Figures 9 – 11 and 15; Page 11, lines 17 – 26 and Page 15, lines 27 - 33),
- wherein both said non-rotating-tool machining and said cutting-machining are performed while the one of said stationary scroll and said slewing scroll having said one of said stationary scroll wrap and said slewing wrap is fixed in a chuck (see Figure 15, Page 11, line 32 – Page 16, line 25).

Regarding claims 17 and 31, BISHOP discloses:

- machining a surface of said end plate from which said one of said stationary scroll wrap and said slewing scroll wrap extends with the same non-rotational blade used for said non-rotating-tool machining of said side face of said one of said stationary scroll wrap and said slewing scroll wrap (see Figure 7 which shows that the end plate is also machined with the same non-rotational blade used for non-rotating-tool machining the side faces); and
- performing a finish cutting with a different non-rotational blade than that used for said non-rotating-tool machining of said side face of said one of said stationary scroll wrap and said slewing scroll wrap (see Figures 9 – 11 and 15; Page 11, lines 17 – Page 16, line 25);
- wherein said non-rotating-tool machining, said machining, and said finish cutting are performed while the one of said stationary scroll and said slewing scroll

having said one of said stationary scroll wrap and said slewing scroll wrap is fixed in a chuck (see Figure 15; Page 11, lines 17 – Page 16, line 25).

Regarding claims 18 and 32, BISHOP discloses:

- simultaneously machining a surface of said end plate from which said one of said stationary scroll wrap and said slewing scroll wrap extends with the same non-rotational blade used for said non-rotating-tool machining of said side face of said one of said stationary scroll wrap and said slewing scroll wrap (see Figure 7 which shows that the end plate is simultaneously being machined using the same non-rotational blade (11 or 12) used for non-rotating-tool machining the side faces).

Regarding claim 28, BISHOP discloses:

- non-rotating-tool machining said side face of said one of said stationary scroll wrap and said slewing scroll wrap by moving said non-rotational blade along the longitudinal direction of said one of said stationary scroll wrap and said slewing scroll wrap results in said side face of said one of said stationary scroll wrap and said slewing scroll wrap being machined by said non-rotational blade (Page 4, line 30 – Page 5, line 24).

BISHOP further discloses that "the tool is engaged with the wrap for a small depth compared to the depth engagement when the entire surface of the wrap (say 30 mm deep) is machined at once in the case of end-milling," (Page 5, line 33 – Page 6, line 6) and that multiple longitudinal passes are made with the non-rotational blade (see Page 4, line 30 – Page 5, line 24). BISHOP discloses multiple passes of the non-rotational

tool, due to a single pass produces great forces on the scroll wrap, which deflects the scroll wrap during machining. BISHOP also discloses that two tools cutting at one time reduce the deflecting forces substantially to zero (Page 6, lines 7-14).

However, BISHOP fails to disclose machined at one time is a portion of said side face, of said one of said stationary scroll wrap and said slewing scroll wrap, extending substantially for a height of said one of said stationary scroll wrap and said slewing scroll wrap so that either one of the stationary scroll wrap or the slewing scroll wrap side faces are machined in their entirety with one pass, and a cutting edge of the non-rotational blade has a length greater than the height of said one of said stationary scroll wrap and said slewing scroll wrap.

BISHOP discloses end milling is performed in one pass (see Page 5, line 33 – Page 6, line 6) with the cutting tool greater in length than the height of the wrap (see Figure 9). The applicant has not disclosed why their machining process would produce different results than the prior art, BISHOP, when machining at one time the same scroll wrap (i.e. same material, same thickness, etc.) a portion of the scroll wrap for the entire height of the scroll wrap. What is different from the applicant's tool that resolves the issue of deflection while machining? Furthermore, BISHOP discloses that two tools cutting at one time reduce the deflecting forces substantially to zero (Page 6, lines 7-14), and therefore, it would be obvious to one of ordinary skill in the art to machine the entire height of the stationary and slewing scroll wrap at one time by using two cutting tools in the machining of the scroll wraps of BISHOP, in order to reduce the machining

time and improve the tolerances on the machined scroll wrap by reducing the deflecting stresses caused by machining.

It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to have machined at one time the scroll wrap extending the height of the wrap in a longitudinal direction with the non-rotational tool in the scroll machining of BISHOP, in order to reduce the machining time and reduce the number of cut lines in the scroll wrap. Furthermore, it would be obvious to a person having ordinary skill in the art at the time of the invention was made to have the cutting edge of the non-rotational blade with a greater length than the height of the wrap of either the stationary or slewing scroll of BISHOP, since when machining the surface in one pass by a non-rotational tool, the tool engaging the part needs to be taller than the part it is machining in order to machine the entire height of the scroll wrap in one pass (see Figure 9). Applying the known technique of machining in one pass a scroll wrap to a machine that utilizes a non-rotational tool, would yield predictable results.

Claims 19 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over BISHOP.

BISHOP discloses the claimed invention, however, fails to disclose machining a surface of the end plate with a different non-rotational blade than that used for said non-rotating-tool machining that was used for machining the side faces of the stationary scroll wrap.

It is the examiner' s position that having a different non-rotational blade to machine the end-plate from the non-rotating-tool machining blade used for the side faces would have been obvious to one having ordinary skill in the art. More specifically,

one having ordinary skill in the art would have generated a separate blade in order to machine the end-face in what ever shape or configuration desired. Utilization of two blades to perform the same machining as one blade involves only routine skill in the art.

Claims 20 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over BISHOP.

Regarding claims 20 and 34, BISHOP discloses:

- said side face of said one of said stationary scroll wrap and said slewing scroll wrap includes an inner side face and an outer side face (see Figures 1-4 which show the inner and outer side faces of the scrolls).

However, he does not disclose the non-rotating-tool machining is performed on said inner side face and said outer side face in any one of an order from said inner side face to said outer side face and an order from said outer side face to said inner side face.

BISHOP discloses using two separate non-rotational blades to machine the inner and outer side faces of the scroll wraps simultaneously (see Figures 5-7), as well as, utilizing one non-rotating-tool machining blade to machine the inner and outer wraps (see Figures 12-14). It is the examiner' s position that the order of machining comprising of machining the inner than the outer wraps or the outer than the inner wraps would have been obvious to one having ordinary skill in the art when machining the scroll wraps using only one non-rotating-tool machining blade. Generation of the order of machining when utilizing one non-rotating-tool machining blade involves only routine skill in the art.

Claims 21 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over BISHOP in view of NIWA ET AL (U.S. Patent Number 4,615,091).

BISHOP discloses the claimed invention as discussed above in claim 14, however, fails to disclose the resulting surface roughness of said side face of said one of said stationary scroll wrap and said slewing scroll wrap measures one micrometer at most.

The resulting surface roughness being one micrometer at most is a design resultant variable. NIWA ET AL discloses a cutting edge that depending on the amount of indexing would result in the desired size and finish (Column 1, lines 44 – 65).

It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to have generated a surface roughness of less than one micrometer or any desired roughness, by changing the number of passes in the non-rotating machining process of BISHOP.

Response to Arguments

Applicant's arguments filed October 28, 2008 have been fully considered but they are not persuasive.

With regard to the double patenting rejection, the terminal disclaimer is approved, and therefore, the double patenting rejection has been withdrawn.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a single pass machining) are not recited in the rejected claim(s). The Examiner would like to emphasis that claim 14 includes the limitation to: "such that machined at one time **is a portion of said side face** (emphasis added)". Claim 14 does not clearly

claim a single pass machining carried out by the non-rotational blade so that substantially the entire side face is machined at one time. The portion of the side face is anticipated by BISHOP and machining multiple (100) portions of the side face so that in the longitudinal direction the scroll wrap is machined at one time, and therefore, meets the claim limitations of claim 14. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Furthermore, the Examiner has reviewed the applicant's original disclosure, and would like the applicant to point out where in the specification is it disclosed to machine the entire length of the scroll wrap at one time.

The applicant's further argues that the BISHOP tools are not vertical, as opposed to the applicant's, which allows the applicant to machine the scroll "in one pass" the entire height of the scroll wrap. It is noted that the features upon which applicant relies (i.e., the cutting edge of the non-rotational blade being vertical or that the blade cuts parallel along the side face of the scroll wrap) are not recited in the rejected claim(s). Furthermore, the applicant refers to Figures 5-7 for the angularity of the tool of BISHOP; however, Figure 13 shows the non-rotational tool to be vertical in order to generate the cuts shown in Figure 14. The blade surface cutting the scroll wrap is vertical and parallel to the scroll wrap. Furthermore, one of ordinary skill in the art would obviously make the cutting surface longer then the surface that is being machined, in order to account for piece to piece variation.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARY A. DAVIS whose telephone number is (571)272-9965. The examiner can normally be reached on Monday thru Thursday; 6:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas E. Denion/
Supervisory Patent Examiner, Art Unit 3748

/Mary A Davis/
Examiner, Art Unit 3748